

COLUMBIA RIVER REGIONAL FORUM

TECHNICAL MANAGEMENT TEAM

April 6, 2005

FACILITATOR'S SUMMARY NOTES ON FUTURE ACTIONS

Facilitator: Donna Silverberg

The following notes are a summary of issues that are intended to point out future actions or issues that may need further discussion at upcoming meetings. These notes are not intended to be the "record" of the meeting, only a reminder for TMT members.

Chum Update/Operations During Low Flow Years

Ron Boyce, Oregon, reported on chum numbers from last week, noting that 146 were caught on 3/29 and 67 were caught on 4/1. The numbers are down from 525 on 3/25; emergence is occurring as expected. Ron reported that Ives Island chum numbers totaled 1,434 to date. Data from 1999-2004 shows that April 23 is the average date for end of emergence; end of emergence was April 16 last year and May 10 in 2002. The salmon managers need another week of data to be able to more clearly see a trend, so do not know yet what a 'significant' downward trend in numbers is yet.

Re: 2005 operations: The salmon managers are concerned about gas levels at chum spawning areas, and plan to continue to monitor those areas next week and then make a recommendation for start of spill at Bonneville (see discussion of SOR 2005-4 below).

Water Supply: The April early bird water supply forecast shows an increase from the March final. Grand Coulee April-September is up from 49.3 MAF (77% of normal) to 52.8 MAF (83% of normal). Lower Granite is up from 9.96 to 11.5 MAF (53%). The Dalles is up from 70.7 to 75.1 MAF (70%). Cindy Henriksen noted that this could be a short-term trend based on recent rain events since snow-pack is low.

Priest Rapids Flow

The action agencies continue to seek input on desired scenarios to be modeled for shaping flows and positioning reservoirs to meet flows. The salmon managers said that last week's Q Adjust was on track, and looked at the STP run made available yesterday. The updated STP shows lower Priest Rapids flows April-June, and a lowered Canadian operation. It still shows a higher elevation in July; this water could be shaped earlier in the season by refilling Grand Coulee later. The action agencies said it would be very helpful to see a set of objectives (in the absence of the ability to meet BiOp objectives) for how to shape flows.

SOR 2005-3

The salmon managers put together SOR 2005-3 relative to MOP operations in the Lower Snake River. The recommended MOP operations were:

- Ice Harbor to MOP+1 on 4/4 pm;
- Lower Granite to MOP+1 on 4/11 pm;

- Little Goose to MOP+1 on 4/12 pm;
- Lower Monumental to MOP on 4/13 pm;
- John Day draft over 3-day period to MIP on 4/15 pm; and
- Operate Grand Coulee as indicated in the 3/30 STP run.

The action agencies responded that, regarding John Day, the project is already near the operating range so a 3-day draft might not be possible; overall the proscriptive details are confusing to the action agencies. The salmon managers responded that the objective was to use water from John Day to relieve pressure from Grand Coulee's inability to draft this year. It was clarified that the flow objectives in the SOR were not a hard constraint for the salmon managers.

ACTION: Ice Harbor was operated to MOP+1 on 4/4 as requested. The action agencies will implement Lower Granite, Little Goose and Lower Monumental to their operating ranges by midnight of the day requested (4/11-4/13). John Day will operate to MIP over a 24-hour period, starting on 4/15 at 5:00 pm and reaching the operating range by 5:00 pm on 4/16. There will be no hard constraints on the flow objectives at Bonneville or draft at Grand Coulee.

SOR 2005-4

The salmon managers presented SOR 2005-4 relative to Ice Harbor and Lower Columbia spill. The recommended spill operations were as follows:

- Spill at Ice Harbor immediately, to BiOp level with bulk spill pattern (without interrupting the RSW test);
- Spill at McNary on 4/10 to BiOp;
- Spill at John Day on 4/10 to BiOp level;
- Spill at The Dalles on 4/11 to BiOp level; and
- Plan to begin spill at Bonneville on 4/15: Monitor flows, gas levels and chum emergence over the next week, and make a recommendation on 4/14 about spill levels at the project.

ACTION: The action agencies will begin spill at Ice Harbor on 4/7 from 6:00pm-6:00am, to BiOp, without interfering with the 10-hour RSW test (the salmon managers supported use of best research conditions for the RSW test). McNary and John Day will operate to UPA spill at 6:00 pm on 4/10. Work on The Dalles was scheduled to begin on 4/10, at which time the gates would be dogged off; Cindy Henriksen said there was a call scheduled to discuss changing this date to 4/11 to coincide with the request for start of spill, and she would report to TMT when more information was available.

(UPDATE: an email from Cindy was sent after the TMT meeting, notifying the group that: *I have received word that the contractor will be able to dog off the gates at The Dalles on Monday, April 11 as requested in SOR 2005-4. The work may be complete about 1100 on Monday. The contractor will be exercising four gates at The Dalles on April 7 to test the hydraulic systems. This will mean there will be some spill at the project between 0900 and 1100 on April 7. If you have questions, please call me. More information about the spill patterns after April 11 at various flow will be forwarded when it is available.*")

The COE was commended for their efforts in installing fish screens at McNary, given an injury to a worker that occurred at the project last week. All wished him a speedy recovery.

The action agencies will plan to begin spill at Bonneville on 4/15, and wait to hear from the salmon managers on 4/14 about specific recommendations. The action agencies need 1-2 days notice IF the planning date for start of spill at Bonneville changes. TMT was reminded that towboat pilots often request that spill stop at John Day for a short amount of time, for safety reasons.

Other

Dworshak: The project increased flows on 4/4 and 4/6 to full powerhouse (4400 cfs) for the planned hatchery release. The snow pack area near Dworshak was higher than anticipated, requiring the COE to operate to local flood control, targeting elevation 1587.5'. Outflows remain at full powerhouse and the COE plans to continue this operation until April 15 to accommodate the flood control requirement.

Idaho and Oregon directly challenged the COE on the validity of the flood control requirements at Dworshak; Idaho asked if there was a way to save some of the water until closer to 4/15 to support lower river migrating fish. This is not an option for the COE, with the given conditions requiring them to operate to local flood control. The COE is operating as conservatively as possible (normally the project passes inflow at ~8 kcfs; the COE is only moving 4.4 kcfs), and will continue to monitor the area and adjust operations as appropriate.

Paul Wagner, NOAA, noted that the current flows are beneficial to listed steelhead moving through the system.

Lower Granite: TMT was reminded that last year, the raceways at Lower Granite began filling with juvenile fish, and, as there was no barge available to transport them, the fish were spilled through the RSW. This operation is in the Fish Passage Plan, in case it is necessary to implement again. If so, biologists at the project will open the RSW. If it is possible to make notification before the operation, the project will, otherwise, the information will be passed on to TMT after the fact.

Next Meeting, April 13, 9am-noon

Agenda items include:

- Water Supply
- Chum Update
- Water Shaping
- Response to CRITFC's River Operations Plan
- WMP Spring/Summer Update (incl. April final water supply forecast, Q Adjust runs)
- Feedback on COE Graphs
- Review 4/6/05 Notes

Actions from 4/6 Meeting

- Feedback on graphs/graphics – by **Monday, 4/4 (or ASAP!!)**

- Written feedback from action agencies on CRITFC's River Operations Plan for 2005 – **By April 13**
- Current Hanford Reach data to Cindy Henriksen for posting to TMT web page – Russell Langshaw, **by April 13**

1. Greetings and Introductions.

Today's Technical Management Team conference call was chaired by Cindy Henriksen and facilitated by Donna Silverberg. The following is a summary (not a verbatim transcript) of the items discussed and decisions made at that meeting. Anyone with questions or comments about these notes should contact Henriksen at 503/808-3945.

2. Chum Update/Operations During Low-Flow Years.

Ron Boyce said the numbers for the most recent seine surveys at Ives Island have declined from 592 on March 25 to 146 on March 29 and 67 on April 1. The total catch is 1,434 chum to date, but numbers are still relatively strong. At the Multnomah Creek, Rivershore and I-205 sites, the numbers haven't been updated since April 1. One additional piece of information – with respect to cumulative totals, and when we've hit 95% emergence, over the last six years, on average, we hit the 95% catch of chum on April 23. The range is April 16 in 2004 to May 10 in 2002.

So the indications are that 2005 is an early emergence year? John Wellschlager asked. It's too early to say, Boyce replied. I thought I had heard that several times, said Wellschlager. Early indications are that this could be an early emergence year, Wills replied. What about temperature unit information? Henriksen asked. The predicted end of emergence is still about April 24, Boyce replied; actual seine catches are the most accurate indication of chum emergence timing.

There were two chum-related action items discussed at last week's TMT meeting, said Silverberg – the possibility of doing real-time measurements at Multnomah Creek, and a salmon managers' discussion of the impacts of Bonneville spill on emerging chum. We talked about that at FPAC yesterday, said Boyce; everyone knows we have pretty low tailwater levels, currently, and we're concerned about dissolved gas levels below Bonneville, particularly at the Multnomah Creek site. SOR 2005-4 addresses this issue; our plan, at this point, is to initiate spill at Bonneville on April 15. We'll have crews in place to measure water elevations and watch TDG levels closely prior to the onset of spill at Bonneville. Anyway, we do have a plan, said Boyce.

Seine catches have been declining over the past week or so, said Paul Wagner; seining data over the next few days will indicate whether that is just a downward tick, or an indication of a downward trend, heading toward the end of emergence. How much data would you deem to be significant enough to indicate that emergence is close to the end? Wellschlager asked. We haven't talked about that yet, Boyce replied; if the

numbers continue to decline, that will factor into our decision about when to start spill at Bonneville. Ideally, we would like to start spill at Bonneville as the remaining chum emerge; that will be the crux of the discussion over the next few weeks. I understand, but what time-frame do you consider significant as numbers continue to decline? Wellschlager asked. I would say that 67, down from 592+, is a significant indicator, but we want to continue to monitor the situation, said Boyce.

My recollection is that, in years past, we have set a time-frame over which to observe declining numbers, before making a decision on this issue, said Silverberg. Boyce replied that in past years, field crews have seen a fairly rapid decline after the peak. However, I am not comfortable with specifying criteria on which to base a conclusion that emergence is nearing an end, at this point, he said.

I'm just trying to understand the criteria you guys use, said Wellschlager. Ultimately, that is an action agency decision, said Boyce; we will be involved in those discussions, but I don't think it's very useful to specify an operation at this time. In another week, we'll have another week's worth of data, and will be in a position to make a more informed decision as to whether the emergence is tailing off, or whether this is just a downward tick. It sounds, then, as though the salmon managers would like another seven days of information before they make that call, said Silverberg.

3. Water Supply Update.

The April early-bird forecast is now available, and has increased somewhat in comparison to the March final, said Henriksen. At Grand Coulee, the March final April-September water supply forecast was 49.3 MAF, 77% of normal. The April early-bird is 53.8 MAF. At Lower Granite, the March final forecast was 9.9 MAF, 46% of average, while the April early-bird was 11.5 MAF, 53% of average. The March final forecast at The Dalles was 70.7 MAF, 66% of average, compared to an April early-bird forecast of 75.1 MAF, 70% of average.

4. Shape/Flow at Priest Rapids.

The action agencies are seeking input as to any desired scenarios the salmon managers would like to see modeled at Priest Rapids, the Snake River projects or Bonneville, said Henriksen. We modeled one scenario from Dave Wills two weeks ago, but have received nothing since. We are willing to model multiple scenarios, Henriksen said, to guide our overall operation and position the reservoirs where you would like to see them.

At the end of the last TMT meeting, we were hoping for some guidance from STP as to the late May-early June period, said Wills. The last QADJ run looked like a pretty good track to go on, at that point; we were waiting to hear the next water supply forecast to see whether it might be possible to do something a little different, and it now looks as though that may be possible. The latest STP run is now available, said Julie Ammann.

Henriksen noted that, in recent days, inflows have been declining throughout the system.

What's different in the latest STP run? Boyce asked. It shows lower Priest Rapids flows, Ammann replied – 90-100 Kcfs in the second half of April, 120-130 Kcfs in May, and 110-120 Kcfs in June. That is due to a change in the Canadian operation – there will be less water released from the Canadian projects than we anticipated last time. There is still an increase in July – 120-135 Kcfs. Some of that water could be moved if that's a priority, by drafting Grand Coulee, Henriksen noted. If you delay refill to 1285 until the end of July, rather than the end of June, that could provide more water earlier in the season. Under the current STP run, we would draft Grand Coulee only 1 foot during July. The message is, if there is a desire for higher Priest Rapids flows in June, Grand Coulee will not achieve 1285 by June 30. It could still refill to whatever objective is chosen by the end of July, but we need to know what the salmon managers want to do by some time in May. We could set an objective for Priest Rapids/Grand Coulee, and hope to do better than that, observed Tony Norris. It's best if the salmon managers can give us some targets, and allow us to do the best we can given actual runoff and flows through the system, said Wellschlager.

I think we have those already – they're called BiOp flow targets, noted Russ Kiefer. But if the BiOp flows can't be achieved, what advice do the salmon managers have? said Silverberg. We have been providing recommendations all along, such as doing the Grand Coulee drum gate repairs in the fall, Kiefer replied. I don't recall the salmon managers actually recommending doing the drum gate repairs in the fall, Norris replied. There has been a general concern about doing that work in the spring, but we understand the dam safety concern, said Boyce. We're not ready, at this point, to provide specific operational recommendations; we would like to look at the latest STP run and discuss it among the salmon managers.

We understand, Henriksen replied; if you look at total average seasonal flows, they haven't changed much in recent months. We just want to be sure you're aware that there is a finite amount of water to shape, and are trying to give you as much information as possible so that you can formulate your recommendations. And we will provide them, said Boyce.

5. SOR 2005-3 – Lower Snake and John Day Operations.

On April 1, the action agencies received SOR 2005-3. This SOR, supported by USFWS, IDFG, ODFW, WDFW, NOAA Fisheries, the Nez Perce Tribe, the Shoshone-Bannock Tribes and CRITFC, requests the following specific operations:

- Draft Ice Harbor Pool to MOP+1 on the evening of April 4
- Draft Lower Granite Pool to MOP+1 beginning the evening of April 11
- Draft Little Goose pool to MOP+1 beginning the evening of April 12
- Draft Lower Monumental pool to MOP beginning the evening of April 13
- Draft John Day pool evenly over a three-day period to MIP beginning the evening of April 15.

Wills provided an overview of the SOR and its justification. The full text is available via hot-link from today's agenda on the TMT homepage. He noted that the overall goal of this SOR is to provide the maximum benefit to the maximum number of fish, in terms of flows and, ultimately, depth compensation for the chum redds below Bonneville as spill begins.

With respect to the John Day operation, that would be 262.5-264.0, to start, said Henriksen; we're currently at 264.5, so we're near that operating range. A three-day period is a bit much for a half-foot draft. We may have misunderstood your current operation, said Wills. Can't you just draft to the bottom of the operating range? Dave Benner asked. We may touch 262.5, but we need to maintain the 1.5-foot operating range at the project, Henriksen replied. Whatever is available, in terms of a draft, it was our intent to send that downstream after the Lower Monumental water is released, said Wills. We had thought there was more water that would be drafted from John Day over the requested three-day period. Henriksen clarified that 262.5-264.0 is the entire operating range at John Day.

We thought that we had a volume of water that we could ask to have evacuated over a 3-day period, said Wills; what you're telling us now is that the volume is less than we thought. The concept was to relieve the pressure on Grand Coulee to maintain flows by taking water from the lower river reservoirs, said Wagner – we simply wanted the action agencies to take the volume available from the lower river projects into account as they draft Grand Coulee. If the objective is to provide depth compensation for the chum at the tail end of the emergence, we can do that, but in a low water year, nothing is free – we're using available storage, said Wellschlager. Maintaining 11.5 feet below Bonneville through the end of emergence is possible, but it will have costs down the road. The main objective is to provide better passage conditions through the pools, said Boyce. Norris noted that, contrary to the language in the SOR, what's in the STP run is not a plan – it is one possible operation.

With respect to the specific operations requested in the SOR, Henriksen said Ice Harbor is already at MOP+1; we will plan to draft Lower Granite to MOP+1 by midnight on the evening of April 11. Nic Lane asked whether it would be possible to draft the pools over a 24-hour period, and asked the salmon managers to specify a time by which each pool would be at MOP or MOP+1, because according to Bonneville schedulers, seven hours is too short a period to

achieve the target elevation. It was agreed that Little Goose will be at MOP+1 by midnight April 12; Lower Monumental will be at MOP by midnight on April 13.

As for the John Day operation, we can try to lower the operating range over a three-day period if that would be desirable, said Henriksen. I think you can do it all in one night, Boyce replied. If we begin on the evening of April 15, is 24 hours OK? Henriksen asked. Yes, Wills replied. In that case, John Day will be at its summer operating range by 5 pm on April 16, said Henriksen. To clarify, there is no flow objective at Bonneville, or a specified objective at Grand Coulee? Henriksen asked. The flow objective at Bonneville is 220 Kcfs, Boyce replied – the objectives don't change due to water supply. I think what Cindy was saying is that there is no hard flow constraint at Bonneville associated with this SOR, Silverberg observed.

6. SOR 2005-4 – Ice Harbor and Lower Columbia Spill.

On April 5, the action agencies received SOR 2005-3. This SOR, supported by USFWS, IDFG, ODFW, WDFW, NOAA Fisheries, the Nez Perce Tribe, the Shoshone-Bannock Tribes and CRITFC, requests the following specific operations:

- Ice Harbor Dam: begin spill immediately to the amount specified in the Biological Opinion with the bulk spill pattern
- McNary Dam: begin spill on April 10 to the amount specified in the Biological Opinion
- John Day Dam: begin spill on April 10 to the amount specified in the Biological Opinion
- The Dalles Dam: Begin spill on April 11 to the amount specified in the Biological Opinion.

Wills provided an overview of the SOR and its justification. The full text is available via hot-link from today's agenda on the TMT homepage.

Our goal is to make a final decision on April 14, in anticipation of starting spill at Bonneville on April 15 at some level, said Wills – we want to look at the data on the 14th to see what gas levels are before we add spill from Bonneville.

I talked to scheduling; they will start spill tomorrow at Ice Harbor, said Wellschlager. That's reasonable, said Wills. We will spill up to the gas cap from 6 a.m.-6 p.m., and 45 Kcfs during nighttime hours, with the adjustments for the RSW test, Wellschlager said. Whatever works best for the RSW research team is fine with the salmon managers, said Wills – we want to be sure the money we're putting into the test is worthwhile.

At McNary, John Day and The Dalles, we also plan to start spill at 6 pm on the requested days, said Wellschlager. And what is the plan at John Day? Boyce asked. 60% at night at night until June 20, starting on the 10th, Wellschlager replied. At The Dalles, we have a contractor coming out to dog off Bays 3-6 at a 6-foot opening on April 10, said Henriksen; we will have some flexibility in the operation of Bays 1 and 2. We are investigating whether we can move that back to April 11, she added. I will have more information on Friday as to how Bays 1 and 2 will be used to provide 40% spill. In response to a question, she said Bays 3-6, at a six-foot opening, will provide 42 Kcfs of spill. And you will then use gates 1-2 to try to meet the 40% spill target? Boyce asked. Correct, Henriksen replied, but there are some limitations as to how those gates can be operated – there are no increments down to an opening of 2.5 feet, but we can then operate to half-foot increments after that.

When will you have a decision as to the 10th or the 11th? Boyce asked. By Friday, Henriksen replied – I will inform the salmon managers via email.

Wellschlager said he wanted to thank the Corps for their timely installation of the fish screens at McNary; as some of you may know, there was a serious injury to one of the crew installing those screens last week, when a 300-pound beam fell on his head and ankle. I would add our thanks and condolences, said Wills.

In response to a request, Henriksen said the Corps will be adding an appendix to the Fish Passage Plan showing anticipated spill patterns and quantities at The Dalles as soon as possible. Wellschlager added that the action agencies have no problem waiting until April 14 to hear from the salmon managers regarding the Bonneville spill operation. It's looking as though we will have a recommendation to begin at least some spill at Bonneville on April 15, so from a scheduling standpoint, Bonneville should plan on that, said Boyce. If that changes, please give us a heads-up, as soon as possible, said Wellschlager.

Henriksen noted that there is an ongoing safety issue at The Dalles for towboat passage; at times, it may be necessary to reduce spill for a few minutes to allow barge/towboat passage. Understood, said Wills.

7. Other.

A. Lower Granite/Dworshak Update. I sent an email regarding the increased flow at Dworshak, up to the current full powerhouse capacity of 4.4 Kcfs, to move the fish out from the hatchery downstream, Henriksen said. Working with our counterparts at Walla Walla District, we found that there is a 54% snow-covered area near Dworshak; elevation 1587.5 is the

new April 15 local flood control elevation, in case we get a rain event on top of the snowpack. That is recommended flood control space, based on a design flood and the original spillway design at Dworshak, said Julie Ammann. Dworshak is filling 0.8 feet per day; we're at 1582 feet, currently, Henriksen said, adding that the Corps expects to maintain 4.4 Kcfs outflow through April 15. There is a table of snow-covered area which translates into a required local flood control protection area, and there is a Dworshak-specific flood control page on the web.

Boyce observed that the sudden change in the snow-covered area estimate at Dworshak seems somewhat miraculous to him; in such a low-water year, it seems imprudent to increase Dworshak outflow at this time. Henriksen replied that current Dworshak inflows are in the 9 Kcfs range, so the project is continuing to fill.

You're making this decision based on a satellite photo showing the surface area covered by snow, but that photography doesn't take into account whether the snow is 4 inches deep or four feet deep, Russ Kiefer observed. The snow-covered area was reduced, based on analysis, by the amount that was designated as "dusted" with snow, Ammann replied. Wellschlager noted that nothing causes worse flooding problems than warm rain on top of low-elevation snow. My concern is when you refill Dworshak, said Boyce; if we're trying to maintain Lower Snake flows in the spring, it seems as though you should be storing water in Dworshak now. We have a constraint of 1587.5 feet by April 15, Henriksen replied; we have no choice but to meet that, and will continue to monitor conditions very closely. My concern is that you are releasing water early in the season, when there are few fish migrating, said Kiefer; my recommendation would be that the Corps reduce Dworshak outflow to project minimum right now, while they review the SnoTel information as to how much snow-water equivalent is actually up there on the ground. I don't think there's a whole lot of snow up there, frankly, he said, and find it hard to believe that there is a serious flooding threat in the Clearwater basin this year.

What I'm hearing the Corps saying is that they would normally be passing inflow in 8-9 Kcfs, said Silverberg; instead, they are passing 4.4 Kcfs, I'm concerned about the level of distrust I'm hearing from the salmon managers, that the Corps is hiding the ball on this. The tone is disappointing to me. This is not an optional operation, Wellschlager observed. We have only two units available at Dworshak, currently, we could be spilling, but have chosen a more conservative operation, Henriksen said.

We have talked about early-season storage releases extensively in the past, said Boyce; in 2005, we're facing a near-historical drought condition,

and it is somewhat hard to believe that we are facing a flood situation in the Clearwater basin. I don't know what to do about that, said Silverberg; the Corps is the agency responsible, and I believe they are looking at information that may be different from what you see. Kyle Martin suggested that the Corps wait until the RFC forecast is available before making this decision.

Henriksen reiterated that Dworshak is, in fact, filling – what we're trying to do is to slow that fill so that we meet the April 15 target of 1587.5 feet. That would be the highest Dworshak has been on April 15 in the last four years, by a lot, so I think the action agencies have taken a conservative approach, observed Tom Haymaker. It is good that this is happening during the fish passage season, added Wagner; the steelhead count was 11,000 at Lower Granite yesterday. Silverberg encouraged the salmon managers to further investigate whatever information they consider relevant, and come to Wednesday's TMT meeting prepared to discuss it.

Kiefer reiterated that surface area covered by snow is much more variable than snow-water equivalent. I believe we should be basing our operational decisions on snow-water equivalent, rather than snow-covered area, he said. We may have covered some ground with the recent snow events, but that isn't as accurate as the SnoTel information. Silverberg reiterated that the satellite-observed snow-covered area had been downgraded from a higher percentage to the current 54%, discounting the lightly-dusted areas in the photograph.

Moving on to Lower Granite operations, Henriksen reminded the group that, last year, there were occasions when spill through the RSW occurred at Lower Granite when the raceways became too full of fish, and no barge was available. This is just a reminder that a similar situation could occur this year, and is referenced in the Fish Passage Plan; if it does, we will give the salmon managers as much notice as possible, she said.

7. Next TMT Meeting Date.

The next meeting of the Technical Management Team was set for Wednesday, April 13. Meeting summary prepared by Jeff Kuechle.

Wagner
Henriksen
Wills
Wellschlager
Norris
Harkless

Heizenrater
Beck
Adams
George
Hamilton
Hlebechuk
Boyce
Martin
Benner
Nordt
Lane
Kurt Miller, PGE
Haymaker
MacKay
Traeger
R. Beck
Le
Buchko
Kiefer